FIG.1

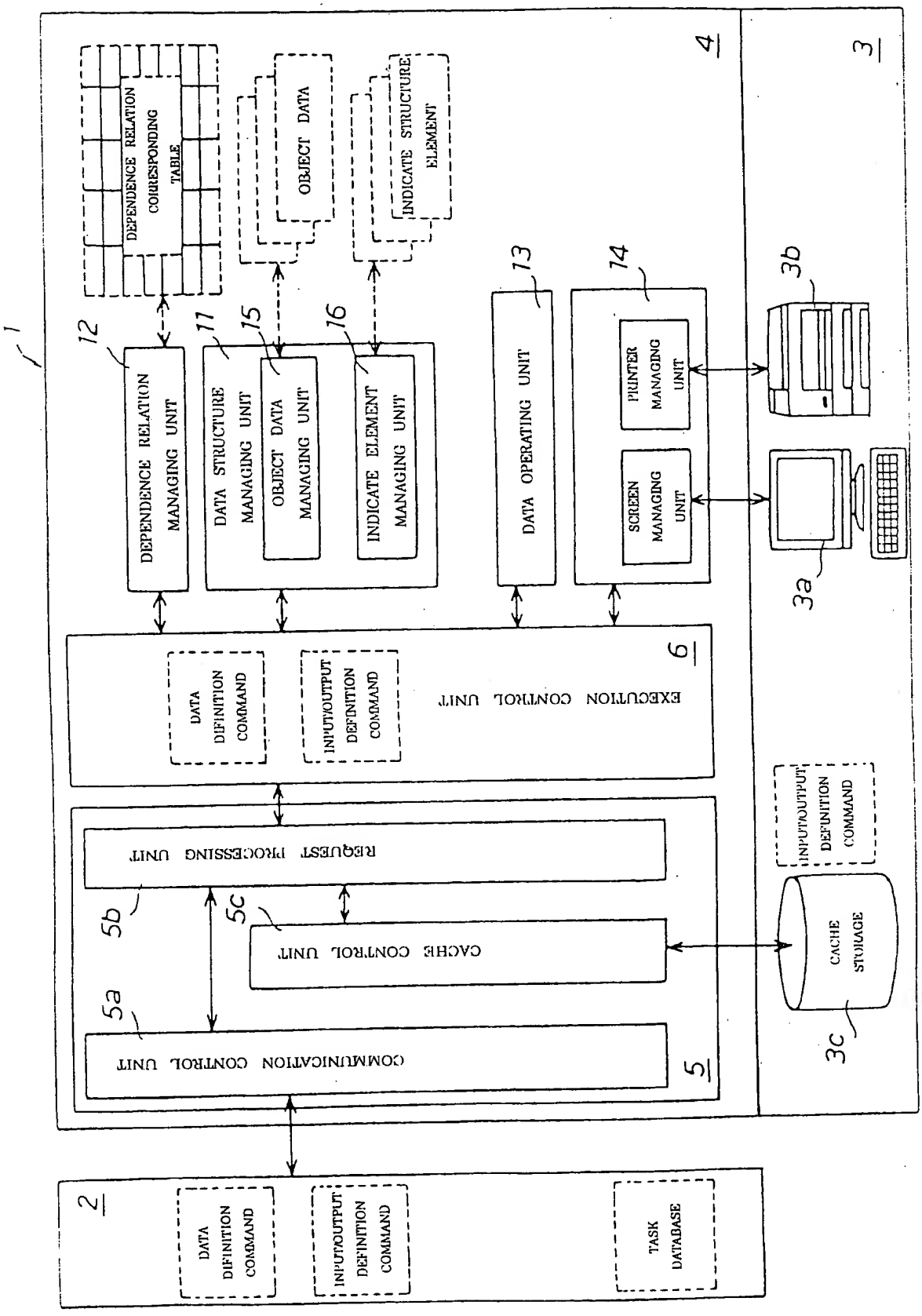
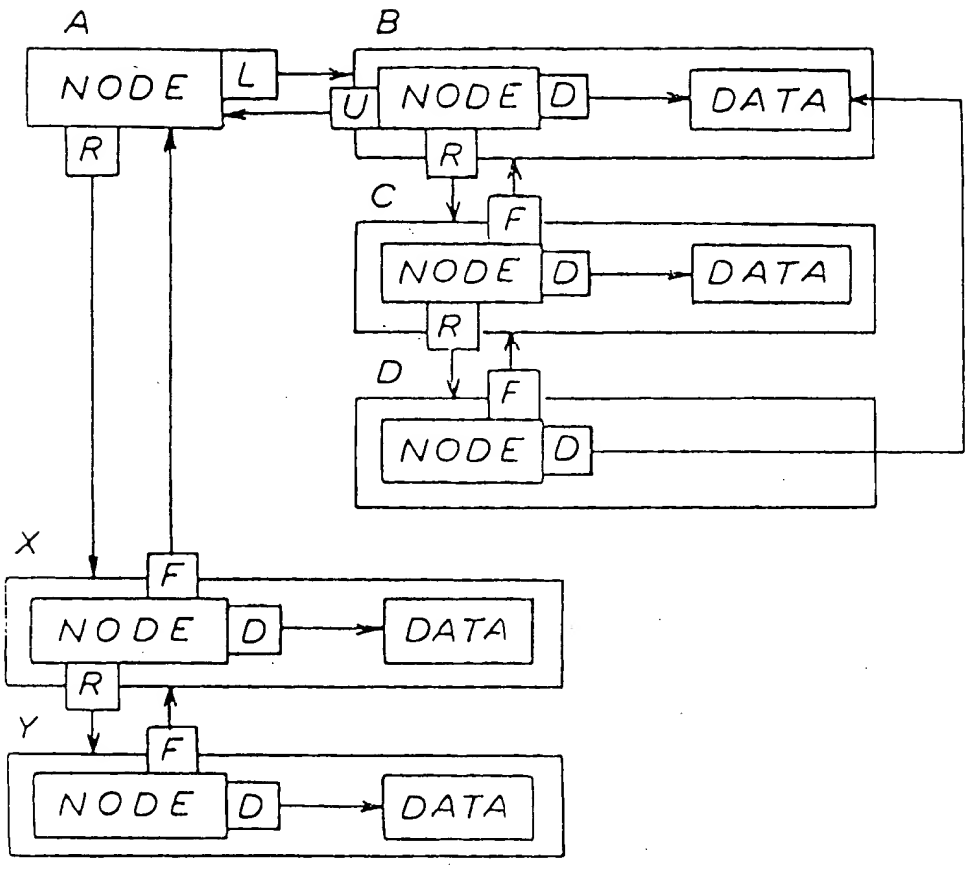

1
4
3
2
DEPENDENCE RELATION CORRESPONDING TABLE
OBJECT DATA
INDICATE STRUCTURE ELEMENT
12
11
15
16
13
14
DEPENDENCE RELATION MANAGING UNIT
DATA STRUCTURE MANAGING UNIT
OBJECT DATA MANAGING UNIT
INDICATE ELEMENT MANAGING UNIT
DATA OPERATING UNIT
PRINTER MANAGING UNIT
SCREEN MANAGING UNIT
3b
3a
6
EXECUTION CONTROL UNIT
DATA DEFINITION COMMAND
INPUT/OUTPUT DEFINITION COMMAND
REQUEST PROCESSING UNIT
CACHE CONTROL UNIT
COMMUNICATION CONTROL UNIT
5b
5c
5a
5
INPUT/OUTPUT DEFINITION COMMAND
CACHE STORAGE
3c
DATA DEFINITION COMMAND
INPUT/OUTPUT DEFINITION COMMAND
TASK DATABASE

FIG.2


A
NODE
L
R
B
U
NODE
D
DATA
R
C
F
NODE
D
DATA
R
D
F
NODE
D
X
F
NODE
D
DATA
R
Y
F
NODE
D
DATA

$X = B + C$

$Y = D + C$

FIG.3

(a)

DEPENDENCE RELATION CORRESPONDENCE TABLE		
DEPENDING SOURCE	DEPENDING TARGET(1)	DEPENDING TARGET(2)
OBJECT A	OBJECT B	OBJECT C
OBJECT B	OBJECT C	
OBJECT C	OBJECT D	

(b)

DEPENDENCE LIST (D)
OBJECT C
OBJECT A
OBJECT B
OBJECT A

(c)

SOURCE LIST
OBJECT C
OBJECT B
OBJECT A

FIG.4

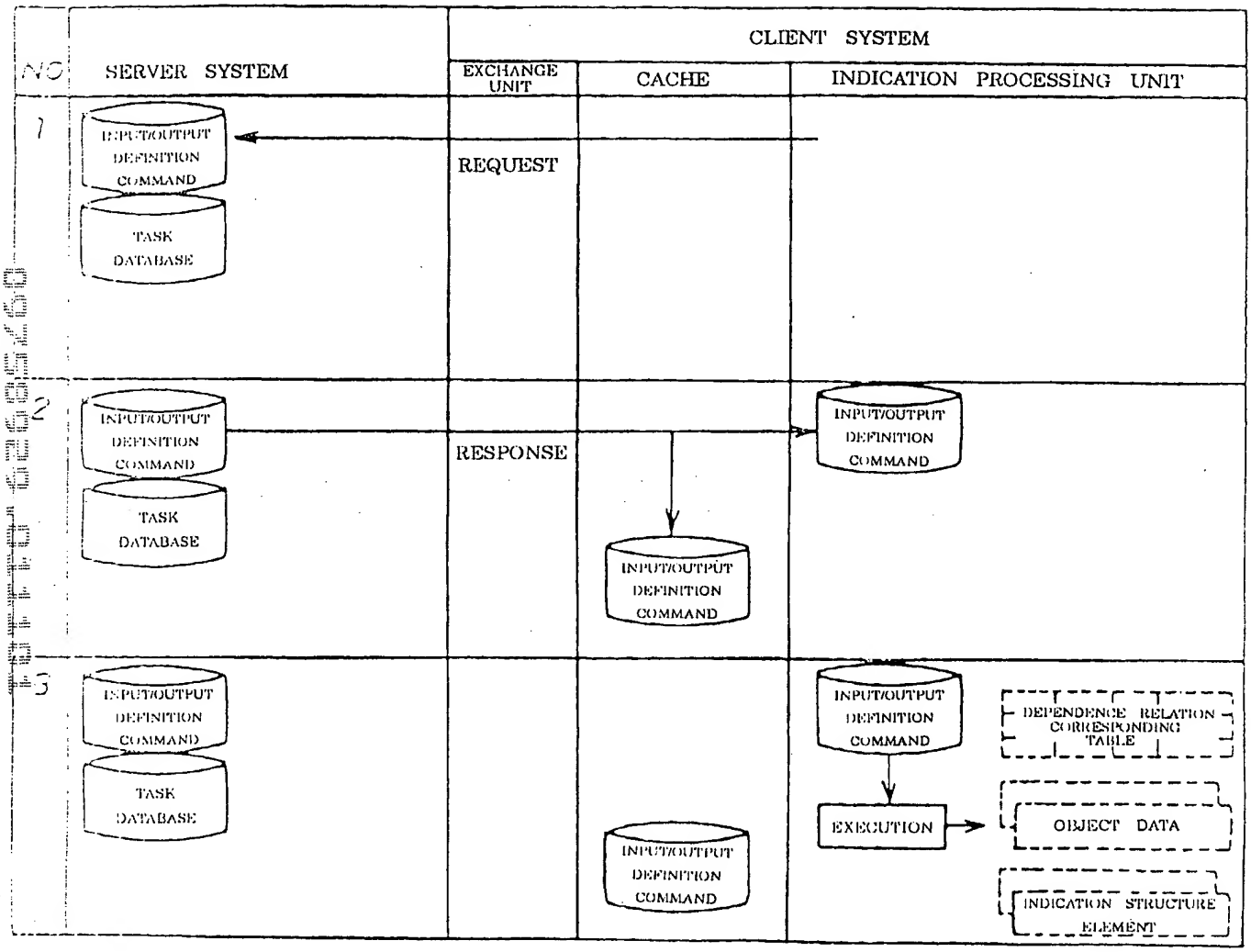

NO
SERVER SYSTEM
CLIENT SYSTEM
EXCHANGE UNIT
CACHE
INDICATION PROCESSING UNIT
1
INPUT/OUTPUT DEFINITION COMMAND
TASK DATABASE
REQUEST
2
INPUT/OUTPUT DEFINITION COMMAND
TASK DATABASE
RESPONSE
INPUT/OUTPUT DEFINITION COMMAND
INPUT/OUTPUT DEFINITION COMMAND
3
INPUT/OUTPUT DEFINITION COMMAND
TASK DATABASE
INPUT/OUTPUT DEFINITION COMMAND
INPUT/OUTPUT DEFINITION COMMAND
DEPENDENCE RELATION CORRESPONDING TABLE
EXECUTION
OBJECT DATA
INDICATION STRUCTURE ELEMENT

FIG.5

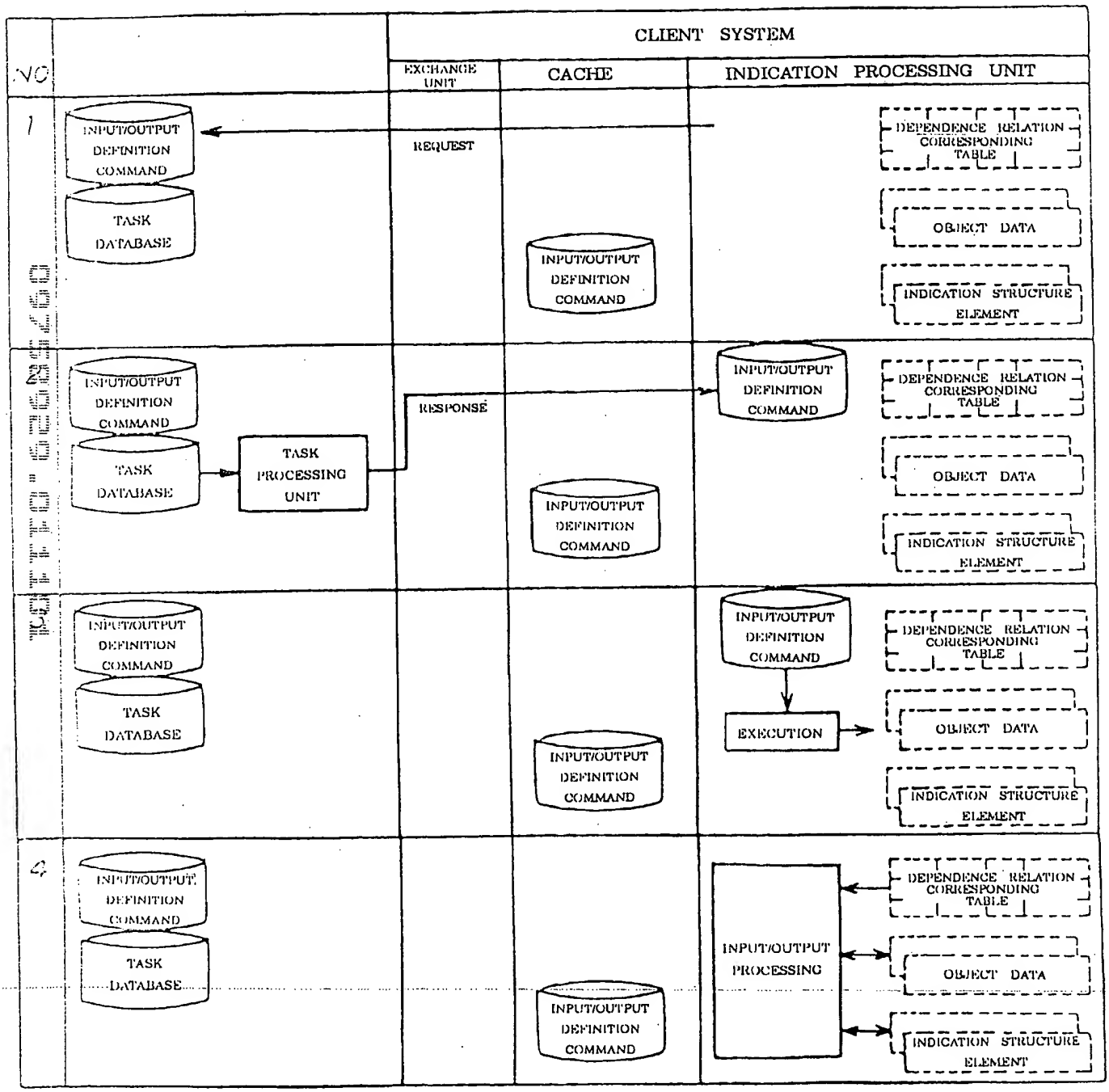
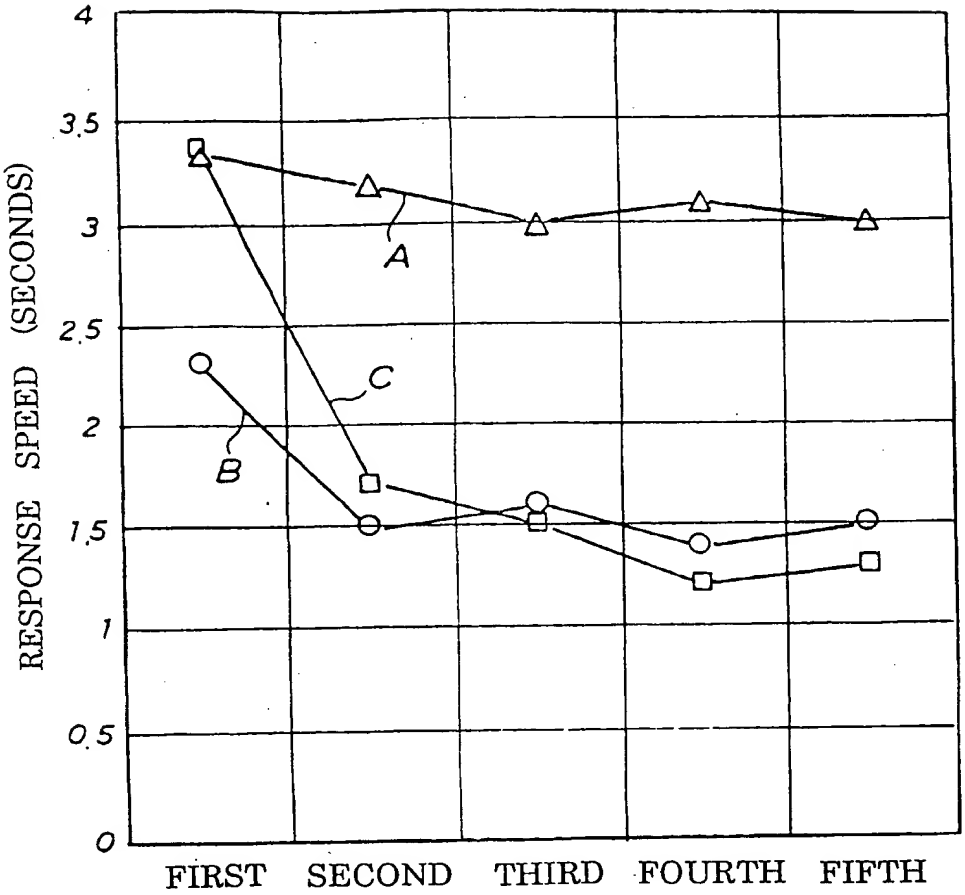

CLIENT SYSTEM
NO
EXCHANGE UNIT
CACHE
INDICATION PROCESSING UNIT
1
INPUT/OUTPUT DEFINITION COMMAND
TASK DATABASE
REQUEST
INPUT/OUTPUT DEFINITION COMMAND
DEPENDENCE RELATION CORRESPONDING TABLE
OBJECT DATA
INDICATION STRUCTURE ELEMENT
2
INPUT/OUTPUT DEFINITION COMMAND
TASK DATABASE
TASK PROCESSING UNIT
RESPONSE
INPUT/OUTPUT DEFINITION COMMAND
INPUT/OUTPUT DEFINITION COMMAND
DEPENDENCE RELATION CORRESPONDING TABLE
OBJECT DATA
INDICATION STRUCTURE ELEMENT
3
INPUT/OUTPUT DEFINITION COMMAND
TASK DATABASE
INPUT/OUTPUT DEFINITION COMMAND
INPUT/OUTPUT DEFINITION COMMAND
EXECUTION
DEPENDENCE RELATION CORRESPONDING TABLE
OBJECT DATA
INDICATION STRUCTURE ELEMENT
4
INPUT/OUTPUT DEFINITION COMMAND
TASK DATABASE
INPUT/OUTPUT DEFINITION COMMAND
INPUT/OUTPUT PROCESSING
DEPENDENCE RELATION CORRESPONDING TABLE
OBJECT DATA
INDICATION STRUCTURE ELEMENT

FIG.6


RESPONSE SPEED (SECONDS)
4
3.5
3
2.5
2
1.5
1
0.5
0
A
B
C
FIRST
SECOND
THIRD
FOURTH
FIFTH